

IN THE CLAIMS

Please cancel claims 11 and 37 thru 40 without prejudice or disclaimer, amend claims 1 thru 3, 6 thru 8, 12, 13, 15, 17, 19, 21, 22, 24, 26 thru 32 and 34, and add claims 41 thru 43, as follows:

1 1. (Currently Amended) An apparatus, comprising:
2 a converter for converting an input optical signal to an original electrical signal;
3 an identification unit for receiving said original electrical signal, for generating a first
4 signal comprising said original electrical signal delayed by a predetermined quantity of time,
5 for generating a second signal comprising said original electrical signal not delayed, for
6 comparing said first and second signals, for forming a third signal in dependence upon said
7 comparing of said first and second signals, and for detecting a bit rate in dependence upon
8 said third signal;
9 a clock generator for generating a separate reference clock signal in dependence upon
10 said detected bit rate; and
11 a recovery unit for recovering an input clock signal and data from said input optical
12 signal in dependence upon said reference clock signal;
13 wherein said identification unit further comprises:
14 a first unit for delaying said original electrical signal, for performing an exclusive
15 -OR operation upon said first and second signals, and for forming said third signal in
16 dependence upon said exclusive-OR operation performed upon said first and second signals;
17 and

18 a second unit for low-pass filtering said third signal, and for detecting said bit rate in
19 dependence upon a voltage level of said low-pass filtered third signal;

20 said second unit comprising:

21 a low-pass filter for low-pass filtering said third signal;

22 an analog-to-digital converter for receiving said low-pass filtered third signal,
23 and for converting said low-pass filtered third signal from an analog signal to a digital
24 signal; and

25 a bit rate deriving unit for deriving said bit rate in dependence upon
26 information related to a voltage level of said digital signal received from said analog-
27 to-digital converter and a predetermined bit rate.

28 2. (Currently Amended) The apparatus of claim 1, said apparatus ~~corresponding to~~
29 comprising an optical receiver for receiving optical signals having a plurality of different bit
30 rates.

1 3. (Currently Amended) The apparatus of claim 1, said bit rate of said input optical
2 signal ~~corresponding to~~ comprising a transmission rate.

1 4. (Previously Presented) The apparatus of claim 1, further comprising an amplifier
2 for amplifying said original electrical signal received from said converter.

1 5. (Original) The apparatus of claim 4, said amplifier outputting said amplified

2 electrical signal to said identification unit.

1 6. (Currently Amended) The apparatus of claim 1, said converter ~~corresponding to~~
2 comprising an optoelectric converter.

1 7. (Currently Amended) The apparatus of claim 1, said identification unit
2 ~~corresponding to~~ comprising a bit rate identification unit.

1 8. (Currently Amended) The apparatus of claim 1, said comparing performed by said
2 identification unit ~~corresponding to~~ comprising said identification unit performing an
3 exclusive-OR logic operation upon said first and second signals.

Claims 9 - 11. (Cancelled)

1 12. (Currently Amended) The apparatus of claim 1, said first unit ~~corresponding to~~
2 comprising a bit rate identification signal generator.

1 13. (Currently Amended) The apparatus of claim 1, said second unit ~~corresponding~~
2 ~~to~~ comprising a bit rate deriving unit.

Claim 14. (Cancelled)

1 15. (Currently Amended) The apparatus of claim 1, said first unit comprising:

2 a buffer unit for receiving said original electrical signal, and for outputting two
3 duplicate signals substantially equivalent to said original electrical signal, said two duplicate
4 signals comprising a primary signal and a secondary signal;

5 a delay unit for receiving said primary signal, for delaying said primary signal by said
6 predetermined quantity of time, and for outputting said delayed primary signal, said delayed
7 primary signal ~~corresponding to~~ comprising said first signal and said secondary signal
8 ~~corresponding to~~ comprising said second signal; and

9 an operator unit for performing said exclusive-OR logic operation upon said first and
10 second signals.

1 16. (Previously Presented) The apparatus of claim 1, said clock generator comprising
2 a plurality of oscillators for generating clocking signals of different frequencies, said
3 oscillators being selectively operated to generate said reference clock signal in dependence
4 upon said bit rate detected by said identification unit.

1 17. (Currently Amended) A method of operating a receiver which functions
2 independently of a bit rate of a received signal, comprising:

3 receiving an original signal;

4 generating a resultant signal by performing an exclusive-OR operation on a first
5 signal and a second signal, said first signal ~~corresponding to~~ comprising said original signal
6 delayed by a predetermined quantity of time, said second signal ~~corresponding to~~ comprising

7 said original signal not delayed;

8 determining a bit rate of said original signal by low-pass filtering said resultant signal,
9 and determining a voltage level of the low-pass filtered resultant signal;

10 generating a reference clock signal separate from said original signal and in
11 dependence upon said determined bit rate; and

12 recovering an input clock signal and data from said original signal in dependence
13 upon said reference clock signal.

Claim 18. (Cancelled)

1 19. (Currently Amended) The method of claim 17, said original signal comprising an
2 input optical signal, said method[[,]] further comprising:

3 converting said input optical signal to an electrical signal;

4 outputting two duplicate signals substantially equivalent to said electrical signal, said
5 two duplicate signals comprising a primary signal and a secondary signal; and

6 delaying said primary signal by said predetermined quantity of time, and outputting
7 said primary signal, said delayed primary signal comprising said first signal.

1 20. (Previously Presented) The method of claim 17, said first and second signals
2 comprising electrical signals.

1 21. (Currently Amended) The method of claim 17, said method ~~corresponding to~~

2 comprising receiving signals having a plurality of different bit rates.

1 22. (Currently Amended) The method of claim 17, said original signal received
2 ~~corresponding to~~ comprising a plurality of original signals received, said recovering of said
3 input clock signal and data from said original signal being performed for said plurality of
4 original signals received, said plurality of original signals received having a respective
5 plurality of different bit rates.

1 23. (Original) The method of claim 17, said recovering of said input clock signal and
2 data from said original signal being performed for a plurality of original signals received,
3 said plurality of original signals received having a respective plurality of different bit rates.

1 24. (Currently Amended) The method of claim 17, said method ~~corresponding to~~
2 comprising receiving optical signals having a plurality of different bit rates.

1 25. (Previously Presented) The method of claim 17, further comprising:
2 receiving an input optical signal;
3 converting said input optical signal to an original electrical signal;
4 outputting two duplicate signals substantially equivalent to said original electrical
5 signal, said two duplicate signals comprising a primary signal and a secondary signal; and
6 delaying said primary signal by said predetermined quantity of time, and outputting
7 said primary signal, said delayed primary signal comprising said first signal, said outputted

8 primary signal comprising said second signal.

1 26. (Currently Amended) The method of claim 17, said receiving of said original
2 signal being performed by an optoelectric converter, said original signal being an [[optic]]
3 optical signal, said optoelectric converter converting said original [[optic]] optical signal to
4 an electrical signal, said method further comprising:

5 outputting two duplicate signals substantially equivalent to said electrical signal, said
6 two duplicate signals comprising a primary signal and a secondary signal, said outputting of
7 said two duplicate signals being performed by a buffer; and

8 delaying said primary signal by said predetermined quantity of time, and outputting
9 said primary signal, said delayed primary signal comprising said first signal, and said
10 outputted primary signal comprising said second signal.

1 27. (Currently Amended) The method of claim 17, said generating of said reference
2 clock signal being performed by a clock generator, said clock generator comprising a
3 plurality of oscillators for generating clocking signals of different frequencies, and
4 ~~selectively operating~~ said oscillators being selectively operated to generate said reference
5 clock signal in dependence upon said detected bit rate.

1 28. (Currently Amended) An apparatus, comprising:
2 a converter for converting an input optical signal to an original electrical signal;
3 an identification unit for receiving said original electrical signal, for generating a first

4 signal comprising said original electrical signal delayed by a predetermined quantity of time,
5 for generating a second signal comprising said original electrical signal not delayed, for
6 forming a third signal by performing an exclusive-OR logic operation upon said first and
7 second signals, and for detecting a bit rate in dependence upon said third signal;

8 a clock generator for generating a reference clock signal in dependence upon said
9 detected bit rate; and

10 a recovery unit for recovering an input clock signal and data from said input optical
11 signal in dependence upon said reference clock signal;

12 said identification unit comprising:

13 a first unit for delaying said original electrical signal, for performing said exclusive-
14 OR operation upon said first and second signals, and for forming said third signal; and

15 a second unit for low-pass filtering said third signal, and for detecting said bit rate in
16 dependence upon a voltage level of said low-pass filtered third signal.

1 29. (Currently Amended) The apparatus of claim 28, said clock generator comprising
2 a plurality of oscillators for generating clocking signals of different frequencies and for
3 selectively operating said oscillators to generate said reference clock signal in dependence
4 upon said bit rate detected by said identification unit.

1 30. (Currently Amended) The apparatus of claim 28, said input optical signal
2 ~~corresponding to~~ comprising a plurality of input optical signals, said recovering of said input
3 clock signal and data from said input optical signal being performed for each of said plurality

4 of input optical signals, said plurality of input optical signals received having a plurality of
5 different bit rates.

1 31. (Currently Amended) The apparatus of claim 30, said converter ~~corresponding~~
2 ~~to~~ comprising an optoelectric converter.

1 32. (Currently Amended) The apparatus of claim 31, said identification unit
2 ~~corresponding to~~ comprising a bit rate identification unit.

Claim 33. (Cancelled)

1 34. (Currently Amended) The apparatus of claim 28, said second unit comprising:
2 a low-pass filter for low-pass filtering said third signal;
3 an analog-to-digital converter for receiving said low-pass filtered third signal, and for
4 converting said low-pass filtered third signal from an analog signal to a digital signal; and
5 a determiner for determining said bit rate in dependence upon said digital signal
6 received from said analog-to-digital converter.

1 35. (Previously Presented) The apparatus of claim 28, said first unit comprising:
2 a buffer unit for receiving said original electrical signal, and for outputting two
3 duplicate signals substantially equivalent to said original electrical signal, said two duplicate
4 signals comprising a primary signal and a secondary signal;

5 a delay unit for receiving said primary signal, for delaying said primary signal by said
6 predetermined quantity of time, and for outputting said primary signal, said delayed primary
7 signal comprising said first signal; and

8 an operator unit for performing said exclusive-OR logic operation upon said first and
9 second signals.

1 36. (Previously Presented) The apparatus of claim 28, said clock generator
2 comprising a plurality of oscillators for generating clocking signals of different frequencies,
3 said oscillators being selectively operated to generate said reference clock signal in
4 dependence upon said bit rate detected by said identification unit.

Claims 37 - 40. (Canceled)

1 41. (New) The apparatus of claim 1, wherein said recovery unit comprises a
2 programmable recovery unit.

1 42. (New) The method of claim 17, wherein said recovery step is performed by a
2 programmable recovery unit.

1 43. (New) The apparatus of claim 28, wherein said recovery unit comprises a
2 programmable recovery unit.